查询NJU7221供应商

HIGH PRECISION C-MOS 3-TERMINAL VOLTAGE REGULATOR

■ GENERAL DESCRIPTION

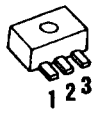
The NJU7221 series is a high precision output voltage (±2%) 3-terminal positive voltage regulator which contains internal accurate voltage reference, error amplifier, control transistor and output voltage setting resistor.

The regulation voltage is fixed by internal circuits and the following line-up of different output voltage versions are available.

The NJU7221 series is suitable for battery operated items and battery back-up systems because of low operating current and low dropout voltage.

■ PACKAGE OUTLINE

NJU7221L



NJU7221U

■ FEATURES

- High Precision Output Voltage ±2%
- Low Operating Current 19uA typ
- Low Dropout Voltage $\triangle V_{IO}$<0.6V @I_O=100mA
- Wide Operating Voltage Range
- Small Temperature Coefficient of Output Voltage
- Package Outline TO-92/SOT-89
- C-MOS Technology

■ TERMINAL DESCRIPTION

No.	Description
1	GND
2	Input
3	Output

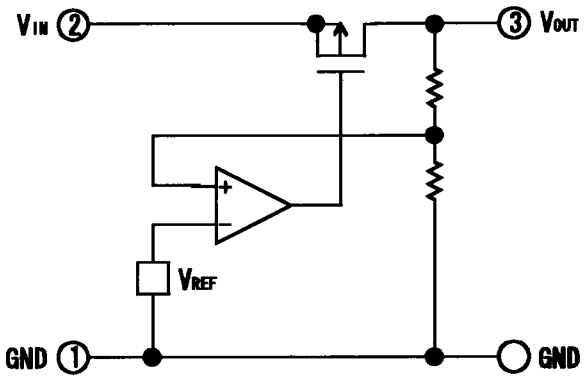
■ OUTPUT VOLTAGE LINE-UP

Output Voltage	TO-92 Type	SOT-89 Type	Output Voltage	TO-92 Type	SOT-89 Type
+1.2V	NJU7221L12	NJU7221U12	+3.2V	NJU7221L32	NJU7221U32
+1.5V	NJU7221L15	NJU7221U15	+3.5V	NJU7221L35	NJU7221U35
+1.9V	NJU7221L19	NJU7221U19	+4.0V	NJU7221L40	NJU7221U40
+2.0V	NJU7221L20	NJU7221U20	+5.0V	NJU7221L50	NJU7221U50
+2.5V	NJU7221L25	NJU7221U25	+5.2V	NJU7221L52	NJU7221U52
+2.7V	NJU7221L27*	NJU7221U27*	+5.5V	NJU7221L55	NJU7221U55
+3.0V	NJU7221L30	NJU7221U30	-	-	-

Note1) The SOT-89 type name is different from the marking, so it refer to attached paper correspondence table.

Note2) * : Planning products.

■ EQUIVALENT CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PRAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	14	V
Output Voltage	V_{OUT}	GND-0.3 ~ V_{IN}+0.3	V
Output Current	I_{OUT}	100	mA
Power Dissipation	P_D	500 (TO-92) 300 (SOT-89)	mW
Operating Temperature	Topr	- 25 ~ + 75	°C
Storage Temperature	Tstg	- 40 ~ +125	°C

■ ELECTRICAL CHARACTERISTICS

+1.2V Version (C_{IN}=C_O=0.1uF, Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=3.0V, I_{OUT}=5mA	1.176	1.200	1.224	V
Dropout Voltage	$\triangle V_{IO}$	I_{OUT}=0.5mA	–	0.02	0.30	V
Input Voltage	V_{IN}		–	–	12	V
Operating Current	I_Q	V_{IN}=3.0V	–	19	30	uA
Load Regulation	$\frac{\triangle V_{OUT}}{\triangle I_{OUT}}$	V_{IN}=3.0V, I_{OUT}=1~15mA	–	10	180	mV
Line Regulation	$\frac{\triangle V_{OUT}}{\triangle V_{IN} \cdot V_{OUT}}$	V_{IN}=1.5~12V	–	0.1	–	%/V

+1.5V Version (C_{IN}=C_O=0.1uF, Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=3.0V, I_{OUT}=5mA	1.47	1.50	1.53	V
Dropout Voltage	$\triangle V_{IO}$	I_{OUT}=0.5mA	–	0.02	0.30	V
Input Voltage	V_{IN}		–	–	12	V
Operating Current	I_Q	V_{IN}=3.0V	–	19	30	uA
Load Regulation	$\frac{\triangle V_{OUT}}{\triangle I_{OUT}}$	V_{IN}=3.0V, I_{OUT}=1~15mA	–	10	180	mV
Line Regulation	$\frac{\triangle V_{OUT}}{\triangle V_{IN} \cdot V_{OUT}}$	V_{IN}=1.8~12V	–	0.10	–	%/V

+1.9V Version (C_{IN}=C_O=0.1uF, Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=3.0V, I_{OUT}=5mA	1.862	1.900	1.938	V
Dropout Voltage	$\triangle V_{IO}$	I_{OUT}=0.5mA	–	0.02	0.30	V
Input Voltage	V_{IN}		–	–	12	V
Operating Current	I_Q	V_{IN}=3.0V	–	19	30	uA
Load Regulation	$\frac{\triangle V_{OUT}}{\triangle I_{OUT}}$	V_{IN}=3.0V, I_{OUT}=1~15mA	–	10	180	mV
Line Regulation	$\frac{\triangle V_{OUT}}{\triangle V_{IN} \cdot V_{OUT}}$	V_{IN}=2.1~12V	–	0.10	–	%/V

+2.0V Version (C_{IN}=C_O=0.1uF, Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=4.0V, I_{OUT}=10mA	1.96	2.00	2.04	V
Dropout Voltage	$\triangle V_{IO}$	I_{OUT}=20mA	–	0.2	0.6	V
Input Voltage	V_{IN}		–	–	12	V
Operating Current	I_Q	V_{IN}=4.0V	–	19	30	uA
Load Regulation	$\frac{\triangle V_{OUT}}{\triangle I_{OUT}}$	V_{IN}=4.0V, I_{OUT}=1～20mA	–	15	180	mV
Line Regulation	$\frac{\triangle V_{OUT}}{\triangle V_{IN} \cdot V_{OUT}}$	V_{IN}=3.0～12V	–	0.10	–	%/V

+2.5V Version (C_{IN}=C_O=0.1uF, Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=4.5V, I_{OUT}=10mA	2.45	2.50	2.55	V
Dropout Voltage	$\triangle V_{IO}$	I_{OUT}=20mA	–	0.2	0.6	V
Input Voltage	V_{IN}		–	–	12	V
Operating Current	I_Q	V_{IN}=4.5V	–	19	30	uA
Load Regulation	$\frac{\triangle V_{OUT}}{\triangle I_{OUT}}$	V_{IN}=4.5V, I_{OUT}=1～20mA	–	15	180	mV
Line Regulation	$\frac{\triangle V_{OUT}}{\triangle V_{IN} \cdot V_{OUT}}$	V_{IN}=3.5～12V	–	0.10	–	%/V

+2.7V Version (C_{IN}=C_O=0.1uF, Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=4.7V, I_{OUT}=10mA	2.646	2.700	2.754	V
Dropout Voltage	$\triangle V_{IO}$	I_{OUT}=20mA	–	0.2	0.6	V
Input Voltage	V_{IN}		–	–	12	V
Operating Current	I_Q	V_{IN}=4.7V	–	19	30	uA
Load Regulation	$\frac{\triangle V_{OUT}}{\triangle I_{OUT}}$	V_{IN}=4.7V, I_{OUT}=1～20mA	–	15	180	mV
Line Regulation	$\frac{\triangle V_{OUT}}{\triangle V_{IN} \cdot V_{OUT}}$	V_{IN}=3.7～12V	–	0.10	–	%/V

+3.0V Version (C_{IN}=C_O=0.1uF, Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=5.0V, I_{OUT}=10mA	2.94	3.00	3.06	V
Dropout Voltage	$\triangle V_{IO}$	I_{OUT}=20mA	–	0.2	0.6	V
Input Voltage	V_{IN}		–	–	12	V
Operating Current	I_Q	V_{IN}=5.0V	–	19	30	uA
Load Regulation	$\frac{\triangle V_{OUT}}{\triangle I_{OUT}}$	V_{IN}=5.0V, I_{OUT}=1～20mA	–	15	180	mV
Line Regulation	$\frac{\triangle V_{OUT}}{\triangle V_{IN} \cdot V_{OUT}}$	V_{IN}=4.0～12V	–	0.10	–	%/V

+3.2V Version (C_{IN}=C_O=0.1uF, Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=5.2V, I_{OUT}=10mA	3.136	3.200	3.264	V
Dropout Voltage	$\triangle V_{IO}$	I_{OUT}=20mA	–	0.2	0.6	V
Input Voltage	V_{IN}		–	–	12	V
Operating Current	I_Q	V_{IN}=5.2V	–	19	30	uA
Load Regulation	$\frac{\triangle V_{OUT}}{\triangle I_{OUT}}$	V_{IN}=5.2V, I_{OUT}=1～20mA	–	15	180	mV
Line Regulation	$\frac{\triangle V_{OUT}}{\triangle V_{IN} \cdot V_{OUT}}$	V_{IN}=4.2～12V	–	0.10	–	%/V

+3.5V Version (C_{IN}=C_O=0.1uF, Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=5.5V, I_{OUT}=10mA	3.43	3.50	3.57	V
Dropout Voltage	$\triangle V_{IO}$	I_{OUT}=20mA	–	0.2	0.6	V
Input Voltage	V_{IN}		–	–	12	V
Operating Current	I_Q	V_{IN}=5.5V	–	19	30	uA
Load Regulation	$\frac{\triangle V_{OUT}}{\triangle I_{OUT}}$	V_{IN}=5.5V, I_{OUT}=1～20mA	–	15	180	mV
Line Regulation	$\frac{\triangle V_{OUT}}{\triangle V_{IN} \cdot V_{OUT}}$	V_{IN}=4.5～12V	–	0.10	–	%/V

+4.0V Version (C_{IN}=C_O=0.1uF, Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=6.0V, I_{OUT}=30mA	3.92	4.00	4.08	V
Dropout Voltage	$\triangle V_{IO}$	I_{OUT}=40mA	–	0.3	0.6	V
Input Voltage	V_{IN}		–	–	12	V
Operating Current	I_Q	V_{IN}=6.0V	–	19	30	uA
Load Regulation	$\frac{\triangle V_{OUT}}{\triangle I_{OUT}}$	V_{IN}=6.0V, I_{OUT}=1～40mA	–	35	120	mV
Line Regulation	$\frac{\triangle V_{OUT}}{\triangle V_{IN} \cdot V_{OUT}}$	V_{IN}=5.0～12V	–	0.10	–	%/V

+5.0V Version (C_{IN}=C_O=0.1uF, Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=7.0V, I_{OUT}=30mA	4.90	5.00	5.10	V
Dropout Voltage	$\triangle V_{IO}$	I_{OUT}=40mA	–	0.3	0.6	V
Input Voltage	V_{IN}		–	–	12	V
Operating Current	I_{DD1}	V_{IN}=7.0V, No Load	–	19	30	uA
Load Regulation	$\frac{\triangle V_{OUT}}{\triangle I_{OUT}}$	V_{IN}=7.0V, I_{OUT}=1～40mA	–	35	120	mV
Line Regulation	$\frac{\triangle V_{OUT}}{\triangle V_{IN} \cdot V_{OUT}}$	V_{IN}=6.0～12V	–	0.10	–	%/V

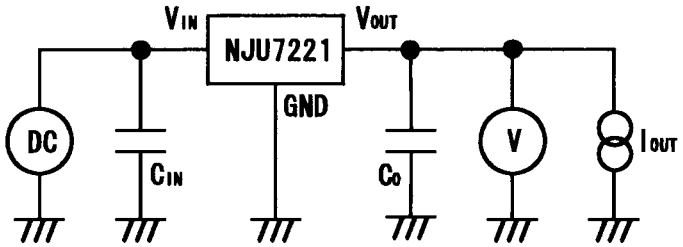
+5.2V Version (C_{IN}=C_O=0.1uF, Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=7.2V, I_{OUT}=30mA	5.096	5.200	5.304	V
Dropout Voltage	$\triangle V_{IO}$	I_{OUT}=40mA	–	0.3	0.6	V
Input Voltage	V_{IN}		–	–	12	V
Operating Current	I_{DD1}	V_{IN}=7.2V, No Load	–	19	30	uA
Load Regulation	$\frac{\triangle V_{OUT}}{\triangle I_{OUT}}$	V_{IN}=7.2V, I_{OUT}=1～40mA	–	35	120	mV
Line Regulation	$\frac{\triangle V_{OUT}}{\triangle V_{IN} \cdot V_{OUT}}$	V_{IN}=6.2～12V	–	0.10	–	%/V

+5.5V Version (C_{IN}=C_O=0.1uF, Ta=25°C)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Output Voltage	V_{OUT}	V_{IN}=7.5V, I_{OUT}=30mA	5.39	5.50	5.61	V
Dropout Voltage	$\triangle V_{IO}$	I_{OUT}=40mA	–	0.3	0.6	V
Input Voltage	V_{IN}		–	–	12	V
Operating Current	I_{DD1}	V_{IN}=7.5V, No Load	–	19	30	uA
Load Regulation	$\frac{\triangle V_{OUT}}{\triangle I_{OUT}}$	V_{IN}=7.5V, I_{OUT}=1～40mA	–	35	120	mV
Line Regulation	$\frac{\triangle V_{OUT}}{\triangle V_{IN} \cdot V_{OUT}}$	V_{IN}=6.5～12V	–	0.10	–	%/V

■ MEASUREMENT CIRCUIT



[CAUTION]
The specifications on this databook are only given for information , without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.